

WEST Search History

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DATE: Tuesday, July 25, 2006

Hide?	Set Name	Query	Hit Count
		<i>DB=USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L6	(aspergillus niger or A. niger) same(lysophospholipase)	7
<input type="checkbox"/>	L5	(aspergillus niger or A. niger) same(lysophospholipase)	7
		<i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L4	(aspergillus niger or A. niger) same(lysophospholipase)	6
<input type="checkbox"/>	L3	(aspergillus niger or A. niger) same(phospholipase or lysophospholipase)	31
		<i>DB=USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L2	(aspergillus niger or A. niger) same(phospholipase or lysophospholipase)	37
<input type="checkbox"/>	L1	(aspergillus niger or A. niger) and (phospholipase or lysophospholipase)	163

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Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 6759225 B2

L6: Entry 1 of 7

File: USPT

Jul 6, 2004

US-PAT-NO: 6759225

DOCUMENT-IDENTIFIER: US 6759225 B2

TITLE: Lysophospholipase

DATE-ISSUED: July 6, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Udagawa; Hiroaki	Yokohama			JP
Frandsen; Torben Peter	Frederiksberg C			DE
Nielsen; Tom Anton Busk	Hanamigawa-ku, Chiba			JP
Kauppinen; Markus Sakari	Smorum			DE
Christensen; Soren	Copenhagen O			DE

US-CL-CURRENT: [435/198](#); [435/195](#), [435/196](#), [435/266](#), [435/267](#)

ABSTRACT:

The inventors have isolated lysophospholipases from *Aspergillus* (*A. niger* and *A. oryzae*) having molecular masses of about 68 kDa and amino acid sequences of 600-604 amino acid residues. The novel lysophospholipases have only a limited homology to known amino acid sequences. The inventors also isolated genes encoding the novel enzymes and cloned them into *E. coli* strains.

15 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIND	Draw D
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☐ 2. Document ID: US 6514739 B1

L6: Entry 2 of 7

File: USPT

Feb 4, 2003

US-PAT-NO: 6514739

DOCUMENT-IDENTIFIER: US 6514739 B1

TITLE: Lysophospholipase

DATE-ISSUED: February 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY
Udagawa; Hiroaki	Yokohama-shi		231-45		JP
Frandsen; Torben Peter	DK-1826 Frederiksberg C				DK
Nielsen; Tom Anton Busk	Hanamigawa-ku, Chiba		262-0012		JP
Kauppinen; Markus Sakari	DK-2765 Sm.o slashed.rum				DK
Christensen; S.o slashed.ren	DK-2100 Copenhagen .O slashed.				DK

US-CL-CURRENT: 435/197; 435/196, 435/266, 435/267

ABSTRACT:

The inventors have isolated lysophospholipases from *Aspergillus* (*A. niger* and *A. oryzae*) having molecular masses of about 68 kDa and amino acid sequences of 600-604 amino acid residues. The novel lysophospholipases have only a limited homology to known amino acid sequences. The inventors also isolated genes encoding the novel enzymes and cloned them into *E. coli* strains.

13 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 3. Document ID: US 6255451 B1

L6: Entry 3 of 7

File: USPT

Jul 3, 2001

US-PAT-NO: 6255451

DOCUMENT-IDENTIFIER: US 6255451 B1

TITLE: Degradation of biologically degradable polymers using enzymes

DATE-ISSUED: July 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY
Koch; Rainhard	Koln				DE
Lund; Henrik	Kopenhagen				DK

US-CL-CURRENT: 528/490; 435/18, 435/19, 435/252.1, 435/254.1, 435/255.1, 435/262, 435/29

ABSTRACT:

This invention relates to the complete degradation by enzymes of moldings, sheet-like products, coatings, adhesives or foams made of biodegradable polymers. The invention relates in particular to the enzymatic degradation of polyester amides, and of polyester urethanes which contain urea groups.

7 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 4. Document ID: US 6140094 A

L6: Entry 4 of 7

File: USPT

Oct 31, 2000

US-PAT-NO: 6140094
DOCUMENT-IDENTIFIER: US 6140094 A

TITLE: Protein with phospholipase activity

DATE-ISSUED: October 31, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Loffler; Fridolin	Bensheim			DE
Jungschafter; Gerald	Alsbach-Hahnlein			DE
Khanh; Quoc Nguyen	Reichelsheim			DE
Schuster; Erwin	Bensheim			DE
Sprossler; Bruno	Rossdorf			DE
Wolf; Sabine	Otzberg			DE

US-CL-CURRENT: 435/198; 435/134, 435/252.3, 435/320.1, 435/913, 435/917, 530/350,
536/23.2, 536/23.74

ABSTRACT:

This invention relates to a protein having phospholipase activity, which is characterised in that it has the mature sequence of *Aspergillus* lysophospholipase or a sequence derived therefrom and that it may be cleaved at at least one site, wherein, in the event of cleavage, the restriction fragments are optionally either linked by means of at least one bond cleavable under reducing conditions or at least one of the unlinked restriction fragments has phospholipase activity, and to a process for the production of this protein by fermenting a suitably transformed lysophospholipase-producing host organism in a suitable culture medium and isolating the protein having phospholipase activity from the cell-free culture filtrate, wherein fermentation is performed in the acidic to slightly alkaline range.

10 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 5. Document ID: US 6001640 A

L6: Entry 5 of 7

File: USPT

Dec 14, 1999

US-PAT-NO: 6001640

DOCUMENT-IDENTIFIER: US 6001640 A

TITLE: Vegetable oil enzymatic degumming process by means of aspergillus phospholipase

DATE-ISSUED: December 14, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Loeffler; Fridolin	Bensheim			DE
Plainer; Hermann	Reinheim			DE
Sproessler; Bruno	Rossdorf			DE
Ottofrickenstein; Hans	Zwingenberg			DE

US-CL-CURRENT: 435/271; 435/267, 435/913, 435/917, 435/918

ABSTRACT:

A degumming step in the production of edible oils is disclosed. Vegetable oils from which hydratable phosphatides have preferably been eliminated by a previous aqueous degumming process, are freed from non-hydratable phosphatides by an enzymatic treatment, so that they may be physically refined. The main characteristic of the invention is the use of phospholipase from an Aspergillus strain. The process is gentle, economical and environment-friendly.

26 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 6. Document ID: US 5965422 A

L6: Entry 6 of 7

File: USPT

Oct 12, 1999

US-PAT-NO: 5965422

DOCUMENT-IDENTIFIER: US 5965422 A

TITLE: Lysophospholipase produced from aspergillus by recombinant methods

DATE-ISSUED: October 12, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Loffler; Fridolin	Bensheim			DE
Nguyen; Quoc Khanh	Reichelsheim			DE
Schuster; Erwin	Bensheim-Auerbach			DE
Sprossler; Bruno	RoBdorf			DE
Thomas; Lutz	North Brunswick	NJ		

Wolf; Sabine

Otzberg

DE

US-CL-CURRENT: 435/198; 435/243, 435/254.11, 435/254.3, 435/320.1, 536/23.2

ABSTRACT:

This invention relates to a recombinant deoxyribonucleic acid (DNA) isolatable from *Aspergillus*, preferably *Aspergillus foetidus*, wherein it codes for a lysophospholipase (LPL) and has the nucleotide sequence for mature LPL stated in SEQ ID NO:1 or a nucleotide sequence derived therefrom, which hybridises under stringent conditions with the nucleotide sequence for mature LPL stated in SEQ ID NO:1. The invention also relates to vectors, to transformed host organisms and to processes for the production of LPL. The invention also provides enzyme products for the production of maltose syrup and products produced in this manner.

14 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn De
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☐ 7. Document ID: US 20050059130 A1, WO 200032758 A1, AU 200013763 A, BR 9915711 A, EP 1131416 A1, ZA 200102858 A, CN 1331742 A, JP 2003524386 W, NZ 511340 A, RU 2235775 C2

L6: Entry 7 of 7

File: DWPI

Mar 17, 2005

DERWENT-ACC-NO: 2000-412310

DERWENT-WEEK: 200521

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TITLE: Producing a lipolytic enzyme variant useful in baking processes and purification of vegetables oils, comprises altering the parent lipolytic enzyme, preparing a variant and testing its activity on selected ester bond

INVENTOR: BOJSEN, K; BORCH, K ; BUDOLFSEN, G ; FUGLSANG, K C ; GLAD, S S ; PETRI, A ; SHAMKANT, A P ; SVENDSEN, A ; VIND, J ; PETRI, A G ; FUGLSANG, C C ; PATKAR, S A ; SCHRODER, G S O

PRIORITY-DATA: 1999US-160735P (October 22, 1999), 1998DK-0001572 (November 27, 1998), 1998US-111430P (December 8, 1998), 1999DK-0000391 (March 22, 1999), 1999US-126914P (March 29, 1999), 1999DK-0001481 (October 15, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 20050059130 A1</u>	March 17, 2005		000	C07H021/04
<u>WO 200032758 A1</u>	June 8, 2000	E	089	C12N009/20
<u>AU 200013763 A</u>	June 19, 2000		000	C12N009/20
<u>BR 9915711 A</u>	August 21, 2001		000	C12N009/20
<u>EP 1131416 A1</u>	September 12, 2001	E	000	C12N009/20
<u>ZA 200102858 A</u>	January 30, 2002		126	A21D000/00
<u>CN 1331742 A</u>	January 16, 2002		000	C12N009/12

<u>JP 2003524386 W</u>	August 19, 2003	108	C12N009/20
<u>NZ 511340 A</u>	July 25, 2003	000	C12N009/20
<u>RU 2235775 C2</u>	September 10, 2004	000	C12N009/20

INT-CL (IPC): A21 D 0/00; A21 D 8/04; A23 C 17/02; A23 L 1/105; C07 H 21/04;
C11 D 3/386; C12 N 1/15; C12 N 1/19; C12 N 1/21; C12 N 5/10; C12 N 9/12;
C12 N 9/20; C12 N 15/09; C12 N 15/55; C12 N 15/63; A21 D 8:04; A23 L 1:105;
C11 D 3/386

ABSTRACTED-PUB-NO: WO 200032758A

BASIC-ABSTRACT:

NOVELTY - Producing (P) a lipolytic enzyme variant (V) involves selecting a substrate (S) and an ester bond (E) of interest, selecting a parent lipolytic enzyme (I), mutating the enzyme by insertion, deletion or substitution of and amino acid and preparing the variant, testing its activity on (E) and selecting the variant having an altered activity.

DETAILED DESCRIPTION - (P) involves selecting (I) comprising:

(a) an alcohol binding site having a glycerol unit with at least one amino acid residue comprising at least one atom within 10 Angstrom of the C atom at the sn2 position of a substrate triglyceride in a three-dimensional structure of (I) and (S);

(b) a catalytic triad consisting of an active Ser, Asp and His residue with at least one amino acid residue comprising at least one atom from set E comprising;

(i) the structure of the lipolytic enzyme with Rhizomucor miehei lipase structure 4TGL comprising a catalytic triad and an inhibitor phosphorus atom (4TGL-inhP), so as to minimize the sum of squares of deviation between atoms of the catalytic triads of the two structures;

(ii) defining a set A consisting of atoms of the lipolytic enzyme inside a sphere of radius 18 Angstrom with center at 4TGL-inhP;

(iii) forming a first plane defined by 4TGL-inhP, the C alpha atom of the active Ser residue of the parent lipolytic enzyme, and the C alpha atom of the active Asp residue of the parent lipolytic enzyme and defining a set B as a subset of set A consisting of atoms on the same side of the first plane as the C alpha atom of the active His residue of the parent lipolytic enzyme;

(iv) forming a second plane defined by 4TGL-inhP, the C alpha atom of the active Ser residue of the parent lipolytic enzyme, and the C alpha atom of the active His residue of the parent lipolytic enzyme and defining a set C as a subset of set A consisting of atoms on the opposite side of the second plane from the C alpha atom of the active Asp residue of the parent lipolytic enzyme;

(v) forming a set D consisting of atoms belonging to the union of sets B and C, and having a solvent accessibility of 15 or higher; and

(vi) forming set E consisting of amino acid residues in the structure which comprise an atom belonging to set D or an atom belonging to the union of sets B and C and located less than 3.5 Angstrom from an atom belonging to set D;

(c) an active site comprising an active His residue in the amino acid sequence of the parent lipolytic enzyme;

(d) one amino acid residue among 10 amino acid residues at the C-terminal; or

(e) from *Humicola* or *Zygomycetes* family and comprising an amino acid residue corresponding to residues 20-25, 56-64, 81-85 and 255-269 in the *Humicola lanuginosa* lipase.

INDEPENDENT CLAIMS are also included for the following:

- (1) (V) produced in (P);
- (2) a lipolytic enzyme (Va) comprising:
 - (i) a substitution, deletion or insertion at a position;
 - (a) is a polypeptide having an amino acid sequence which has at least 80% homology with a reference lipolytic enzyme of the *Humicola* family or the *Zygomycetes* family;
 - (b) compared to the reference lipolytic enzyme comprises an amino acid alteration which is: corresponding to A20, Y21, G23, K24, N25, V63, R81, G82, R84, A257, W260, Y261, F262 or G266 in the *Humicola lanuginosa* DSM 4109 lipase;
 - (ii) a substitution of an amino acid corresponding to C268 or L269 in the lipase;
 - (iii) a substitution corresponding to V60G, D62E, L93K, L97Q, K98E, F, E99D, P256A, G263E, Q, R, F, N, L264A, C, P, F, G, V, I1265L, N, F or T267A, Q, P, S, V, E in the lipase;
 - (iv) an insertion corresponding to T267GS or T267GL in the lipase;
 - (v) a peptide extension at the C-terminal which is A, P, MD, CP, AG, DG, AGG, PVGF, AGRF, PRGF, AGGF or AGGFS;
 - (vi) a peptide extension at the C-terminal of 40-50 amino acids; or
 - (vii) a truncation of 1, 2, 3, 4, 5 or 6 amino acids at the C-terminal; and (c) has an altered activity on an ester bond in a substrate compared with the reference lipolytic enzyme;
- (3) a lipolytic enzyme (Vb) comprising:
 - (a) a polypeptide comprising an amino acid sequence at least 80% homologous to a lysophospholipase from *Aspergillus niger*, the ferulic acid esterase from *Aspergillus tubigensis* or phospholipase A1 from *Aspergillus oryzae*;
 - (b) an amino acid substitution, deletion or insertion at position 20-25, 56-64, 81-85, 91-98, 255-257 or 259-269 in the *Humicola lanuginosa* lipase; and
 - (c) an altered activity on an ester bond in a substrate compared with the reference enzyme;
- (4) a lipolytic enzyme (Vc) which is a variant of a parent lipase derived from *Humicola lanuginosa* strain DSM 4109 comprising the alterations E1E, D, A+ G91G, A, S, T+N94N, D+ D96D, G, F, W+ E99E, K+ G225G, R, K+ G263Q, N+ L264L, A, V+ I265I, T, S+ G266G, A, V, S, D, E+T267T, A, V+L269L, I, N, Q;
- (5) a DNA sequence (II), encoding (Va), (Vb) or (Vc);
- (6) a vector (III), comprising (II);
- (7) a host cell comprising (II) or (III);

(8) producing (P1), (Va), (Vb) or (Vc) comprising cultivating the host cell (7); and

(9) preparing a lipolytic enzyme variant for use in baking comprising:

(a) subjecting a DNA sequence encoding a lipolytic enzyme to random mutagenesis;

(b) expressing the mutated DNA sequence obtained in step (a) in a host cell; and

(c) screening for host cells expressing a lipolytic enzyme variant which compared to the parent lipolytic enzyme has a higher:

(i) ratio selectivity for long-chain fatty acyl groups;

(ii) activity on digalactosyl diglyceride; and

(iii) phospholipase activity; and

(d) preparing the lipolytic enzyme expressed by the host cells.

USE - (Va), (Vb) and (Vc) are useful for preparing dough or a baked product, reducing the content of phospholipid in an edible oil, improving the filterability of an aqueous solution or slurry of carbohydrate origin which contains phospholipid, as a content of detergents, enhancing the flavor of a food product preferably milk (claimed).

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D.
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☐ 1. Document ID: US 20050059130 A1

L4: Entry 1 of 6

File: PGPB

Mar 17, 2005

PGPUB-DOCUMENT-NUMBER: 20050059130

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050059130 A1

TITLE: Lipolytic enzyme variants

PUBLICATION-DATE: March 17, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Bojsen, Kirsten	Hellerup		DK
Svendsen, Allan	Horsholm		DK
Fuglsang, Claus Crone	Niva		DK
Patkar, Shamkant Anant	Lyngby		DK
Borch, Kim	Birkerod		DK
Vind, Jesper	Lyngby		DK
Petri, Andreas	Copenhagen		DK
Schroder Glad, Sanne O.	Ballerup		DK
Budolfsen, Gitte	Frederiksberg		DK

US-CL-CURRENT: [435/198](#); [435/252.31](#), [435/320.1](#), [435/69.1](#), [510/320](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 2. Document ID: US 20050009068 A1

L4: Entry 2 of 6

File: PGPB

Jan 13, 2005

PGPUB-DOCUMENT-NUMBER: 20050009068

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050009068 A1

TITLE: Lysophospholipase

PUBLICATION-DATE: January 13, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
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Udagawa, Hiroaki	Yokohama-Shi	JP
Frandsen, Torben Peter	Frederiksberg C	DK
Nielsen, Tom Anton Busk	Hanamigawa-ku	JP
Kauppinen, Markus Sakari	Smorum	DK
Christensen, Soren	Copenhagen O	DK

US-CL-CURRENT: 435/6; 435/198, 435/252.33, 435/254.3, 435/320.1, 435/484, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 3. Document ID: US 20040253696 A1

L4: Entry 3 of 6

File: PGPB

Dec 16, 2004

PGPUB-DOCUMENT-NUMBER: 20040253696
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040253696 A1

TITLE: Fermentation processes and compositions

PUBLICATION-DATE: December 16, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Grichko, Varvara	Raleigh	NC	US

US-CL-CURRENT: 435/161

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 4. Document ID: US 20040101928 A1

L4: Entry 4 of 6

File: PGPB

May 27, 2004

PGPUB-DOCUMENT-NUMBER: 20040101928
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040101928 A1

TITLE: Lipolytic enzyme genes

PUBLICATION-DATE: May 27, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Tsutsumi, Noriko	Ichikawa-shi Chiba-ken		JP
Vind, Jesper	Vaerlose		DE
Patkar, Shamkant Anant	Lyngby		DE

US-CL-CURRENT: 435/69.1; 435/198, 435/320.1, 435/325, 435/6, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D.
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☐ 5. Document ID: US 20030119164 A1

L4: Entry 5 of 6

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030119164

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030119164 A1

TITLE: Lysophospholipase

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Udagawa, Hiroaki	Yokohama-Shi		JP
Frandsen, Torben Peter	Frederiksberg C		DK
Nielsen, Tom Anton Busk	Hanamigawa-ku		JP
Kauppinen, Markus Sakari	Smorum		DK
Christensen, Soren	Copenhagen O		DK

US-CL-CURRENT: 435/198; 435/252.33, 435/320.1, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D.
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☐ 6. Document ID: US 20010051335 A1

L4: Entry 6 of 6

File: PGPB

Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051335

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010051335 A1

TITLE: POLYNUCLEOTIDES AND POLYPEPTIDES DERIVED FROM CORN TASSEL

PUBLICATION-DATE: December 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
LALGUDI, RAGHUNATH V.	CLAYTON	MO	US
ITO, LAURA Y.	PLEASANTON	CA	US
SHERMAN, BRADLEY K.	OAKLAND	CA	US

US-CL-CURRENT: 435/6; 435/69.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D.
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Terms	Documents
(aspergillus niger or A. niger) same (lysophospholipase)	6

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